

LATEX ALLERGIES

What is Natural Rubber Latex?

Natural rubber latex (NRL) is a milky fluid obtained from the *Hevea brasiliensis* tree, which is widely grown in South East Asia and other countries. NRL is an integral part of thousands of everyday consumer and healthcare items.

As with many other natural products, natural rubber latex contains proteins to which some individuals may develop an allergy.

What is the cause of Natural Rubber Latex allergies?

The introduction of Universal Precautions in the late 1980s mandated that healthcare workers protect themselves against the risk of cross-infection from blood-borne pathogens such as HIV and Hepatitis B. This demand led to an unprecedented demand for NRL gloves, which was met by changes in some manufacturers' practice (ie high protein [allergen] examination gloves coming onto the market place) and is believed to be the primary cause of the increased number of healthcare workers with NRL allergy. At the same time there has been an unrelated and dramatic rise in incidence of atopic allergic disease in the past 30 years, which is also thought to be a major factor.

Who is most at risk?

- Healthcare workers (some studies have reported that up to 17% are at risk of reactions to NRL).
- Individuals undergoing multiple surgical procedures (some studies have reported that up to 65% of Spina Bifida children are sensitised to NRL).
- Individuals with a history of certain food allergies, such as banana, avocado, kiwi and chestnut.
- Individuals with atopic allergic disease (estimated at some 30-40% of the UK population).
- Individuals exposed to NRL on a regular basis, e.g. workers in the car mechanics, catering and electronics trades.

Around 1-6% of the general population is thought to be potentially sensitised to NRL although not all sensitised individuals develop symptoms.

Are all latex allergies the same?

There are two types of allergy related to natural rubber latex, one caused by the natural proteins, the other by chemicals that are used to convert the NRL to a usable item. They are respectively called Type I and Type IV allergy.

Some people may experience an irritant reaction when using products made from natural rubber latex, which is known as irritant contact dermatitis. This is not, however, a true allergy.

Type IV allergy

Some people react to the chemicals used in the manufacturing process, mostly accelerators. The chemicals most likely to cause a reaction are thiurams, dithiocarbamates and mercaptobenzothiazoles (MBT).

This is a delayed hypersensitivity reaction which occurs 6-48 hours post-exposure.

Symptoms of Type IV allergy

Red itchy scaly rash, often localised to the area of use, i.e. wrists and forearms with glove use, but which may spread to other areas.

Management of Type IV allergy

Occupational Health or medical advice should be sought and avoidance of the specific chemicals in future use.

Type 1 allergy

Type 1 natural rubber latex allergy is an immediate allergic reaction to NRL proteins and is potentially life threatening.

Deaths have occasionally been reported due to latex allergy.

Symptoms of Type 1 allergy

- Urticaria (hives) and hay fever Type symptoms, asthma.
- Though rare, more severe symptoms such as anaphylaxis (a condition where there is a severe drop in blood pressure leading to possible loss of consciousness or severe breathing difficulty).

Months or even years of exposure without symptoms may precede onset of clinical symptoms of Type 1 NRL allergy. In many cases symptoms become progressively more severe on repeated exposure to NRL allergens, so it is important for sensitised individuals to avoid further contact with NRL proteins.

NRL allergens attach to cornstarch used in powdered gloves. This powder acts as a vehicle making the NRL proteins airborne when these gloves are used, enabling the allergens to be inhaled. This means that NRL allergic individuals may experience symptoms of an allergic reaction, by being in a room where powdered NRL gloves are used even though they are not in contact with these gloves directly.

Management of Type 1 allergy

Avoidance of the allergen is the best treatment option. There is no cure for NRL allergy but medications are available to treat symptoms of NRL allergy once it develops.

Natural rubber is found in many thousands of consumer and medical products. There are two types of natural rubber products. Dipped or stretchy NRL products (e.g. gloves, balloons, condoms, rubber bands) are a more frequent cause of allergic reactions to latex proteins than dry rubber products (e.g. tyres, tubing). Reactions to dry rubber products are less common and only experienced by severely sensitised individuals.

How are allergies diagnosed?

There is currently no completely reliable investigation for Type 1 NRL allergy, and diagnostic practice varies across the country. In general, the diagnosis is made on the basis of clinical history plus either positive allergen-specific IgE blood test or skin prick/glove challenge test. Type IV allergy is diagnosed by standard patch testing.

Use of medical equipment

Many items contains NRL but are often not usually labelled to warn of NRL content. Because a much more serious reaction may occur when these items contact internal body surfaces, e.g. mucosal, parenteral and serosal contact, it is very important for sensitised patients to inform healthcare providers of their allergy so that only NRL-free medical equipment is used.

How can sensitised individuals avoid NRL?

- Avoid contact with NRL gloves or products where possible
- Inform employers and healthcare providers of NRL allergy
- Avoid areas where inhalation of powder from NRL gloves worn by others or from balloon displays may occur.
- Recommend use of Medic-Alert bracelet, stating NRL allergy.

How is NRL used?

Gloves are the single most widely used device containing natural rubber latex. The Health and Safety Executive has stated that, "Single use disposable natural rubber latex gloves may be used where a risk assessment has identified them as necessary. When they are used they must be low-protein and powder-free".

In many situations a risk-assessment will suggest that in the presence of a risk of blood-borne pathogen transmission, for example surgery and body fluid contact, NRL is the safest choice of material provided to the worker and patient are not sensitised to this. If a person is sensitised to NRL proteins, NRL-free gloves and equipment must be used.

Not all NRL-free gloves afford the same protection against blood-borne pathogens so care must be taken in the choice of substitutes. Some gloves may only be

suitable for non-clinical tasks as they may not afford the same level of protection against transmission of blood-borne pathogens. If there is doubt suppliers can be asked to provide test data proving the glove's suitability.

NRL gloves are also often used in catering, domestic services, motor industry, hairdressing and other professions and trade where, if there is no contact with blood or body fluids, they should be substituted by an alternative non-latex product.

Why use NRL?

NRL is a widely-used and cost-effective material, which for the majority of the population is not a clerical risk. The importance of risk-assessment is to make an informed decision as to whether an alternative is effective for the task.

NRL has many benefits which are yet to be equalled where there is a requirement for specific tactility and dexterity qualities, for example in surgical practice. Where it is used, the gloves must be low protein and powder free.

Products containing NRL

- Examination and surgical gloves
- Oral and nasal airways
- Endotracheal tubes
- Intravenous tubing
- Surgical masks
- Rubber aprons
- Injection ports
- Bungs and needle sheaths on medicines
- Wound drains
- Dental dams
- Anaesthesia masks
- Blood pressure cuffs
- Syringes
- Stethoscopes
- Tourniquets
- Electrode pads
- Surgical masks

Consumer items

- Erasers
- Rubber bands
- Balloons
- Condoms

- Contraceptive cap
- Baby teats
- Hot water bottles
- Stress balls
- Sports equipment (e.g. hand grips and gym mats)
- Swimming cap and goggles
- Washing up gloves
- Carpets
- Adhesives
- Tyres
- Underwear elastic
- Shoe soles
- Calculator/remote control buttons